



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Mathematics &**  
**Statistics**

**MATH-101-D01**  
**Calculus 2**  
**Winter 2021**

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**COURSE OUTLINE**

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The course description is online @ <http://camosun.ca/learn/calendar/current/web/math.html>

**1. Instructor Information**

(a) Instructor	Laura Shepherd
(b) Office hours	By email: Monday – Friday 10:30am – 11:20am
(c) Location	N/A
(d) Phone	N/A
(e) E-mail	shepherd@camosun.bc.ca
(f) Website	https://online.camosun.ca/d2l/home

**2. Intended Learning Outcomes**

Upon completion of this course the student will be able to:

1. Differentiate and integrate inverse trigonometric, hyperbolic and inverse hyperbolic functions.
2. Use integration to find area, volume, arc length, surface area of revolution, work, moments and centroids.
3. Integrate using parts, trigonometric integrals, trigonometric substitution, partial fractions and tables.
4. Evaluate limits, which have indeterminate forms, and calculate improper integrals.
5. Test a sequence for convergence and explain the difference between convergence of a sequence and convergence of a series.
6. Test series for convergence using the integral test, p-test, comparison tests, alternating series test and ratio test and explain the difference between convergence and absolute convergence.
7. Estimate the error in approximating a series using improper integrals and the alternating series remainder.
8. Calculate Taylor polynomials, power series, Taylor series, and MacLaurin series and estimate the error in an approximation using Taylor's Theorem.
9. Determine the interval of convergence of a power series.
10. Graph and analyze parametric curves and find arc length and surface area in parametric form.
11. Graph and analyze curves given in polar coordinates and determine area and arc length in polar form.

**3. Required Materials**

Textbook: Calculus (11th. Edition) by Larson and Edwards

## **4. Chapters and Sections**

### **Chapter 5. Logarithmic, Exponential, and Other Transcendental Functions**

- 5.6 Indeterminate Forms and L'Hôpital's Rule
- 5.7 Inverse Trigonometric Functions: Differentiation
- 5.8 Inverse Trigonometric Functions: Integration
- 5.9 Hyperbolic Functions

### **Chapter 7. Applications of Integration**

- 7.1 Area of a Region Between Two Curves
- 7.2 Volume: The Disk Method
- 7.3 Volume: The Shell Method
- 7.4 Arc Length and Surfaces of Revolution
- 7.5 Work
- 7.6 Moments, Centers of Mass, and Centroids

### **Chapter 8. Integration Techniques and Improper Integrals**

- 8.1 Basic Integration Rules
- 8.2 Integration by Parts
- 8.3 Trigonometric Integrals
- 8.4 Trigonometric Substitution
- 8.5 Partial Fractions
- 8.8 Improper Integrals

### **Chapter 9. Infinite Series**

- 9.1 Sequences
- 9.2 Series and Convergence
- 9.3 The Integral Test and p-Series
- 9.4 Comparisons of Series
- 9.5 Alternating Series
- 9.6 The Ratio and Root Tests
- 9.7 Taylor Polynomials and Approximations
- 9.8 Power Series
- 9.9 Representation of Functions by Power Series
- 9.10 Taylor and Maclaurin Series

### **Chapter 10. Conics, Parametric Equations, and Polar Coordinates**

- 10.1 Conics and Calculus
- 10.2 Plane Curves and Parametric Equations
- 10.3 Parametric Equations and Calculus
- 10.4 Polar Coordinates and Polar Graphs
- 10.5 Area and Arc Length in Polar Coordinates

## 5. Basis of Student Assessment (Weighting)

**Your internet connection and technology are your responsibility.**

(a) **Assignments** (10%)

**Practice Assignment:** (no marks) Due Friday January 22nd

**Assignment One:** Due Friday February 12th

**Assignment Two:** Due Friday March 5th

**Assignment Three:** Due Friday March 26th

**Assignment Four:** Due Friday April 16th

(b) **Quizzes** (60%)

There are no make-up quizzes. If you are going to miss a quiz for any reason please let me know BEFORE the quiz takes place.

**Quiz One:** (During scheduled class time.) Tuesday January 26th

**Quiz Two:** (During scheduled class time.) Tuesday February 9th

**Quiz Three:** (During scheduled class time.) Thursday March 4th

**Quiz Four:** (During scheduled class time.) Thursday April 1st

(c) **Final Exam** (30%)

Students MUST be available to write the exam at the scheduled time.

**Final Exam Period: April 19 – 27**

### Academic Integrity:

The Department of Mathematics and Statistics has prepared a handout called “Student Guidelines for Academic Integrity” to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references. This document can be found in the “Course Documents” module of D2L.

The School of Arts and Science has prepared its own set of Academic Honesty Guidelines, which you should also review. It can be found under the heading “Academic Resources” on the school webpage [camosun.ca/learn/school/arts-science/archives/index.html](https://camosun.ca/learn/school/arts-science/archives/index.html).

The move to online learning and assessment brings with it some new challenges. With regard to academic integrity, the key point to remember is

*The work you submit must be your own!*

When writing quizzes, you may not seek or obtain help from anyone else. That includes family, friends, classmates, tutors, websites, etc. You may use a basic scientific calculator, such as the Sharp EL-531, or other similar calculator or similarly capable program or app, but you may not use more advanced tools like Maple, Wolfram|Alpha, graphing calculators, etc.

You are expected to be able to write quizzes without reference to any books, notes, or other materials. Nevertheless, you are permitted to refer to your course notes and/or the textbook, but no other resources. Keep in mind that if you find yourself having to look something up in your notes or the textbook, you will likely not finish your quiz on time.

With regard to assignments, your work must again be your own. Collaboration with other students is permitted so long as it does not turn into plagiarism. Needless to say, you may not use “homework cheat” websites such as Chegg, Slader, Course Hero, etc.

**Minimum consequences for academic dishonesty in this course are as follows:**

**Assignments:** The student will receive a zero for all of the assignment.

**Quizzes:** The student will receive a zero for the quiz.

**Final Exam:** The student will receive a failing grade for the course.

## 6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

Camosun Online Math Lab: <http://camosun.ca/services/help-centres/math-help.html#MATH072>

CalcChat: <https://www.calcchat.com/>

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

## B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete</i> : A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress</i> : A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal</i> : A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.